REMARKS

In response to final Office Action dated August 26, 2008, claims 1 and 37 have been amended and claims 6, 7, and 39 have been canceled. Therefore, claims 1-5, 8, 9, 12-25, 27, 28, 31-38, and 40 are now in the case. The Applicants respectfully request that this amendment be entered under 37 C.F.R. 1.116 to place the above-referenced application in condition for allowance or, alternatively, in better condition for appeal. In light of the amendments and arguments set forth herein, reexamination and reconsideration of the application are requested.

Allowable Subject Matter

The Applicants gratefully acknowledge and appreciate the allowance of claims 9, 12-25, 27, 28, and 31-36.

Section 102(b) Rejections

The Office Action rejected claims 1-8 and 37-40 under 35 U.S.C. § 102(b) as being anticipated by Lu et al. (U.S. Patent No. 5,805,217). The Office Action stated that Lu et al. disclose each and every element of the rejected claims.

In response, the Applicants respectfully traverse these rejections. In general, the Applicants submit that the Lu et al. patent is lacking features recited in the Applicants' claims. More specifically, Lu et al. do not disclose, either explicitly or implicitly, the material claimed features of:

1. (Recited in amended independent claim 1): "determining a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain;" and "applying the optimal gradient-correction gain to the gradient correction term to determine an amount of the gradient correction linearly combined with the interpolation;"

2.   (Recited in amended independent claim 37): "a gradient-correction selector that determines a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain and applies the optimal gradient-correction gain to the gradient correction term to determine an amount of gradient correction linearly combined with the interpolation."

Amended Independent Claims 1 and 37

Amended independent claim 1 recites a method for interpolating a desired color at a current pixel in a color image, where the current pixel has a current color. The method includes computing an interpolation of the desired color at the current pixel using the desired color, computing a gradient correction term using the current color, and determining a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain. The method also includes applying the optimal gradient-correction gain to the gradient correction term to determine an amount of the gradient correction linearly combined with the interpolation, and linearly combining the interpolation and the gradient correction term to obtain a corrected interpolation of the desired color at the current pixel.

Amended independent claim 37 recites a gradient-corrected linear interpolation system for interpolating a missing color value at a given pixel in a color image, where the given pixel has a current color. The system includes a general-purpose computing device and a computer-readable storage medium having stored and encoded thereon a computer program having program modules containing computer-executable instructions that are executable by the general-purpose computing device. The computer program further includes an interpolation module that computes an interpolation of the missing color value, and a correction term computation module that computes a gradient correction term for the interpolation. The correction term computation module includes a gradient-correction selector that determines a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain and applies the optimal gradient-correction gain to the gradient

correction term to determine an amount of gradient correction linearly combined with the interpolation. The computer program also includes a linear combination module that linearly combines the interpolation and correction term to produce a corrected interpolation for the missing color value at the given pixel.

Note that both independent claims 1 and 37 recite determining a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain; and applying the optimal gradient-correction gain to the gradient correction term. In particular, the "gradient-corrected linear interpolation method also includes applying a gradient-correction gain to the gradient correction term. This gradient-correction gain affects the amount of gradient correction that is applied to the interpolation. For example, if the gradient-correction gain is 0.8, then only 80% of the gradient correction is linearly combined with the interpolation. The gradient-correction gain can be selected in a variety of ways. The optimal gradient-correction gain is computed by minimization a mean-square error" (specification, page 10, lines 27-31 to page 11, lines 1-2). Moreover, "[I]n order to determine appropriate values for the gradient-correction gains . . . a Wiener approach was used. In other words, the values that led to minimum mean-square error interpolation were computed" (specification, page 23, lines 1-4; emphasis added).

Thus, amended independent claims 1 and 37 recite that a gradient-correction gain is determine to minimize a mean-square error and produce an optimal gradient-correction gain, and that optimal gradient-correction gain then is applied to the gradient correction term.

In contrast, Lu et al. merely uses a gain without any discussion of minimizing the mean-square error to produce an optimal gain. In particular, the Office Action stated that "Lu discloses applying a gradient-correction gain to the gradient correction to determine the amount of the gradient correction linearly combined with the interpolation (i.e., the sigma gain is applied to the gradient correction." However, nowhere do Lu et al. discuss determining the optimal gain by minimizing the mean-square error.

Accordingly, the Applicants respectfully submit that independent amended claims 1 and 37 are patentable under 35 U.S.C. § 102(b) and are not anticipated by Lu et al., based on the amendments to claims 1 and 37, and the legal and technical arguments set forth above and below. Moreover, claims 2-5 and 8 depend from independent claim 1, and claims 38 and 40 depend from amended independent claim 37, and also are patentable over Lu et al. (MPEP § 2143.03). The Applicants, therefore, respectfully requests reexamination, reconsideration and withdrawal of the rejection of claims 1-8 and 37-40 under 35 U.S.C. § 102(b) as being anticipated by Lu et al.

Section 102(e) Rejections

The Office Action rejected claims 1-8 and 37-40 under 35 U.S.C. § 102(e) as being anticipated by a Kalevo et al. (U.S. Patent No. 7,236,191). The Office Action stated that Kalevo et al. disclose each and every element of the rejected claims.

In response, the Applicants respectfully traverse these rejections. In general, the Applicants submit that the Kalevo et al. patent is lacking features recited in the Applicants' claims. More specifically, Kalevo et al. do not disclose, either explicitly or implicitly, the material claimed features of:

1. (Recited in amended independent claim 1): "determining a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain;" and "applying the optimal gradient-correction gain to the gradient correction term to determine an amount of the gradient correction linearly combined with the interpolation;"

2. (Recited in amended independent claim 37): "a gradient-correction selector that determines a gradient-correction gain such that a mean-square error is minimized to produce an optimal gradient-correction gain and applies the optimal gradient-correction gain to

the gradient correction term to determine an amount of gradient
correction linearly combined with the interpolation."

As noted above, both independent claims 1 and 37 recite that a gradient-
correction gain is determine to minimize a mean-square error and produce an optimal
gradient-correction gain, and that optimal gradient-correction gain then is applied to the
gradient correction term.

In contrast, Kalevo et al. merely uses a gain without any discussion of minimizing
the mean-square error to produce an optimal gain. The Office Action stated that "Kalevo
discloses applying a gradient-correction gain to the gradient correction to determine the
amount of the gradient correction linearly combined with the interpolation (column 5/30-35,
gain is applied to the gradient correction LapCor Term)." However, nowhere do Kalevo et
al. discuss determining the optimal gain by minimizing the mean-square error.

Accordingly, the Applicants respectfully submit that independent amended claims 1
and 37 are patentable under 35 U.S.C. § 102() and are not anticipated by Lu et al., based
on the amendments to claims 1 and 37, and the legal and technical arguments set forth
above and below. Moreover, claims 2-5 and 8 depend from independent claim 1, and
claims 38 and 40 depend from amended independent claim 37, and also are patentable
over Lu et al. (MPEP § 2143.03). The Applicants, therefore, respectfully requests
reexamination, reconsideration and withdrawal of the rejection of claims 1-8 and 37-40
under 35 U.S.C. § 102(b) as being anticipated by Lu et al.

Accordingly, the Applicants respectfully submit that amended independent claims 1
and 37 are patentable under 35 U.S.C. § 102(e) and are not anticipated by Kalevo et al.,
based on the amendments to claims 1 and 37, and the legal and technical arguments set
forth above and below. Moreover, claims 2-5 and 8 depend from amended independent
claim 1, and claims 38 and 40 depend from amended independent claim 37, and also are
patentable over Kalevo et al. (MPEP § 2143.03). The Applicants, therefore, respectfully
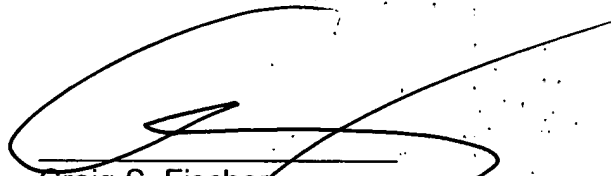requests reexamination, reconsideration and withdrawal of the rejection of claims 1-8 and

37-40 under 35 U.S.C. § 102(e) as being anticipated by Kalevo et al.

Conclusion

In view of the amendments to claims 1 and 37 and the arguments set forth above, the Applicants submit that pending claims 1-5, 8, 9, 12-25, 27, 28, 31-38, and 40 are in condition for immediate allowance. The Examiner, therefore, is respectfully requested to withdraw the outstanding rejections of the claims and to pass each of the pending claims of this application to issue.

In an effort to expedite and further the prosecution of the subject application, the Applicants kindly invite the Examiner to telephone the Applicants' attorney at (805) 278-8855 if the Examiner has any comments, questions or concerns, wishes to discuss any aspect of the prosecution of this application, or desires any degree of clarification of this response.

Respectfully submitted,
Dated: October 26, 2008

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